

## REMARKS

Favorable reconsideration and allowance of this application are requested.

### **1. Discussion of Amendments**

By way of the amendment instructions above, the independent claims herein have been further amended so as to clarify the claimed subject matter. Specifically, the claims have been amended so as to emphasize that at least some of the magnets are inversely oriented such that *magnetic fields are fixed* between adjacent ones of the magnets to thereby *locally define collection of the magnetic particles at each magnet* introduced into the liquid mixtures of the wells. Support for such amendments can be found in the originally filed specification at page 3, lines 1-15, especially lines 11-15.

Therefore, following entry of this amendment claims 10-23 will remain pending herein for consideration.

### **2. Response to 35 USC §103(a) Rejection**

The Examiner has persisted in the rejection of prior claims 10-16 and 19 based on Ekenburg et al (USP 5,567,326) in view of Hatch (USP 6,514,415) and against claims 17-18 and 20-23 based on Ekenburg et al and Hatch and further in view of Gombinsky et al (USP 6,409,925). Applicants respectfully suggest that the applied references of record are inappropriate to reject the claims pending herein.

In essence, although the Examiner appears to recognize that the Ekenberg device comprises paramagnetic pins, which are temporarily magnetized by the magnet pack, he nonetheless asserts that the applied Hatch patent makes it statutorily "...obvious to use permanent magnets." (Official Action at paragraph 17, line 5.) Applicants respectfully disagree with this conclusion.

It is essential in the Ekenberg device that there is a relatively large external magnet located above the vessels which magnetizes the pins. This kind of pin will leak magnetic flux along the pin body so that particles will attach to the pin everywhere. There is no focused collecting position along the pin and thus the force to keep the particles on the pin is very low. The situation is worse with long pins. Moreover, the Ekenberg system is not suitable for deeper wells. Because there is no magnetic flux concentration on the surface of the pin, the magnetic force keeping the particles on the surface of the pin is weak and unreliable. Also particle distribution along the magnetic pin will require high volume in the release well because the particles must be flushed away. This means that no concentration is possible in the processing.

Ekenberg does not therefore suggest or contemplate the use of permanent magnetic pins. If different pins should have to have opposite magnetic fields, one would then have to use several external magnets in stead of one as clearly taught by Ekenberg. Ekenberg's device with inverted magnets would simply be technically infeasible.

Hatch generally teaches the use of a common magnet for a group of vessels. In this regard, Hatch discloses a system which is only viable where the magnets are physically located outside the vessels. See in this regard, column 2, lines 20-24. Hatch's construction has thus been designed especially for plates comprising a great number of wells (column 2, lines 13-18). According to Hatch, therefore, the magnets are arranged in a plane so that there are a plurality of poles perpendicularly to such plane. This is achieved according to Hatch by placing opposing magnets tightly side-by-side. The magnetic flux and field are short-circuited by the adjacent opposite magnets. Residual magnetic field is a thin layer over the magnets so that the principle is not efficient with any deeper vessels (e.g., vessels with a depth of 30 mm – 40 mm). Creating such a consistent magnetic field as taught by Hatch, would not be desirable in a system commensurate with the presently claimed invention.

In contrast, according to the presently claimed invention it is possible to use very deep vessels. Particles can be released to very low volumes so that at least 1:20 concentration can be achieved in the particle transfer phase. Particles are lifted safely from the liquid because of strong and focused magnetic force on the bottom edge of the tip.

Significantly, Hatch does not disclose why more consistent separation is achieved. However, when one studies in greater detail the disclosure of Hatch, it is apparent that there is always a border line of two opposing magnets below the side wall or bottom (Fig. 7b) of each well. Thus, Hatch exemplifies only those arrangements in which one magnet always covers a plurality of wells.

Hatch also makes reference in claim 1 to "magnets [being] arranged in a plane proximate the container." This clearly means that in principle, the magnets can be placed alternately on a side of the container. Placing magnets on an inside of the container is thus specifically *excluded*. Moreover, placing the Hatch magnets physically into the vessels of the container could not be accomplished without separating the magnets one from another which is specifically contrary to the very teaching of Hatch.

Hatch teaching is also contradictory to the presently claimed invention. As noted above, Hatch keeps the particles in the vessels by means of magnets placed under the vessels. Liquid handling is needed with the risk of vessel to vessel cross-contamination. In the presently claimed invention (and in Ekenberg) pins are introduced into the vessels and the particles removed with the help of the pins. No liquid handling is needed. These two principles cannot be combined in any reasonable way to achieve any reasonable technical result. As such, Hatch cannot be of any help in modifying the Ekenberg device.

Simply converting the Ekenberg pins to permanent magnets as apparently the Examiner has presumed is thus technically unobviousness as demonstrated above.

Moreover, Hatch also explicitly references the Ekenberg device and notes that such a magnetic separation technique is virtually impractical for the cells contemplated by Hatch. Thus, an ordinarily skilled person would not be led to combine Hatch with Ekenberg for at least this reason also.

For these reasons, therefore, the presently claimed invention would not be “obvious” in view of Ekenberg et al and Hatch.

Gombinsky et al is noted as disclosing a reciprocally movable casing for a separating device. However, this disclosure does not cure the deficiencies of Elkenberg et al and Hatch as already discussed.

Accordingly withdrawal of all rejections advanced under 35 USC §103(a) is in order. Early receipt of the Official Allowance Notice is awaited.

### **3. Fee Authorization**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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